

**REMARKS**

In the Office Action,<sup>1</sup> the Examiner withdrew claims 5, 6, 8, 9, 23, 24, 29-33, and 42-47 from consideration; objected to claims 13, 16, 20, 22-24, 26, 29, 31-33, 36, 38, 41, 45, and 47 for informalities; rejected claims 1-4, 7, 10-22, 25-28, and 34-41 under 35 U.S.C. § 112, second paragraph; rejected claims 1-4, 7, 10-16, 19, 20, 25-28, and 34 under 35 U.S.C. § 102(b) as anticipated by Korean Patent Application Publication No. 2003-0030926 to *Atarashi*, applying English language equivalent U.S. Patent Application Publication No. 2003/0185134; rejected claims 17, 18, 35, and 37 under 35 U.S.C. § 103 as unpatentable in view of *Atarashi*; rejected claims 36, 38, and 39 under 35 U.S.C. § 103 as unpatentable over *Atarashi* in view of U.S. Patent Application Publication No. 2002/0172132 to *Takeuchi*; and indicated claims 21, 22, 40 and 41 would be allowable if rewritten.

By this response, Applicants have amended claims 1, 13, 16, 20, 21, 26, 28, 29, 31, 33, 34, 38-41, 45, and 47. Claims 17, 18, 27, and 35-37 have been cancelled without disclaimer or prejudice, so objections or rejections with respect to these claims are moot. Claims 1-16, 19-26, 28-34, and 38-47 remain pending.

**Claim Objections**

Applicants respectfully request that the claim objections be withdrawn.

Applicants have amended the following claims:

- Claims 20, 26, 31, 33, 38, 41, 45, and 47 now end with a period;
- Claims 16, 23, 24, 29, 31, and 32 have correct status identifiers;

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Office Action.

- Claim 13 recites “arbitrary”;
- Claim 20 recites “at least one plastic lens”;
- Claim 38 no longer has parenthesis around “wavelength 587.6 nm.”

**35 U.S.C. § 112, second paragraph**

Applicants respectfully request that the 35 U.S.C. § 112, second paragraph, rejections be withdrawn with respect to claims 1-4, 7, 10-16, 19-22, 25-28, 34, and 38-41. The claims fully comply with the statutory requirements. Applicants have made the following amendments:

- Claims 1 and 34 no longer contains a “ratio,” and instead recites “a second wavelength  $\lambda_2$  which is in the range of 600 nm-700 nm”;
- Claim 34 has antecedence for “the lens group,” and “spherical aberration correcting optical unit” has been removed;
- Claims 21 and 40 no longer contains “one-group lens.”

**35 U.S.C. § 102(b)**

Applicants respectfully traverse the rejection of claims 1-4, 7, 10-16, 19, 20, 25-28, and 34 under 35 U.S.C. § 102(b) as being anticipated by *Atarashi*. In order to properly establish that *Atarashi* anticipates Applicants’ claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference. See M.P.E.P. § 2131, quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.”

See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

*Atarashi* does not disclose each and every element of Applicants' claimed invention. Amended claim 1 recites a combination of elements including, for example, "wherein the chromatic aberration correcting optical element satisfies one of the following combinations:  $(n_1, n_2, n_3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)$  where  $n_1$ ,  $n_2$ , and  $n_3$  are diffraction orders of diffracted rays with the largest diffraction efficiencies in the diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively." The Examiner states that although the third embodiment of *Atarashi* discloses certain claimed features, it does not disclose the above cited portion of claim 1. Office Action, Pages 8-9. Therefore *Atarashi* cannot anticipate at least this portion of claim 1, and the 35 U.S.C. § 102 rejection of claim 1 should be withdrawn.

Because *Atarashi* does not disclose each and every element recited by amended claim 1, *Atarashi* cannot anticipate this claim. Claim 1 is allowable over the art of record. Independent claim 34, though of different scope from claim 1, recite elements similar to those set forth above for claim 1. Claim 34 is therefore allowable for at least the reasons presented above with respect to claim 1. Claims 2-4, 9-22, 25-28, and 34-41 are also allowable at least due to their respective dependence from claims 1 and 34. Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. § 102(b).

**35 U.S.C. § 103**

**Claims 1, 17, 18, 34, 35, and 37**

Applicants respectfully traverse the rejection of claims 17, 18, 35, and 37 under 35 U.S.C. § 103. While these claims have been cancelled, some of the subject matter of the cancelled claims appears in amended claims 1 and 34, so the rejection is herein discussed. No *prima facie* case of obviousness has been established with respect to the subject matter of current claims 1 and 34.

To establish a *prima facie* case of obviousness, the Examiner must make findings with respect to all of the claim limitations and must make “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” See M.P.E.P. §§ 2143.03 and 2141(III), 8th Ed., Rev. 6 (September 2007). When choosing from a finite number of identified, predictable solutions, the Examiner must also articulate that there is a reasonable expectation of success. See M.P.E.P. § 2143(E).

A *prima facie* case of obviousness has not been established with respect to claims 1 and 34 because, among other things, *Atarashi* does not establish a predictable solution with a reasonable expectation of success.

Amended claim 1 recites, *inter alia*, “wherein the chromatic aberration correcting optical element satisfies one of the following combinations:  $(n_1, n_2, n_3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)$  where  $n_1, n_2$ , and  $n_3$  are diffraction orders of diffracted rays with the largest diffraction efficiencies in the diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively.”

The Examiner alleges that the “first, second, and third embodiments disclose[] everything claimed, as applied to claims 1 and 34, respectively.” Office Action, Page 8. The Examiner additionally alleges that the third embodiment teaches specific claim elements directed to a third light source. *Id.* Even assuming these allegations are true, which Applicants do not concede, *Atarashi* fails to establish a *prima facie* case of obviousness with respect to the specific “diffraction orders” of the “chromatic aberration correcting optical element” of claims 1 and 34.

The Examiner acknowledged that the first embodiment fails to teach all of the claim elements of claims 1 and 34, and relied on a combination of the first and third embodiments to teach the claim elements. Office Action, Pages 8-9. Specifically, the Examiner relied upon the first embodiment to teach certain diffraction orders, and relied upon the third embodiment to teach a particular arrangement of optical elements. *Id.*

With respect to the first embodiment, *Atarashi* teaches  $(n_1, n_2, n_3) = (2, 1, 1)$ ,  $(6, 4, 3)$ ,  $(8, 5, 4)$  for an objective lens OBJ1. Paragraphs 0371-0387. *Atarashi* does not teach a separate “chromatic aberration correcting optical element” for the first embodiment. However, claim 1 requires both “an objective lens unit” and “a chromatic aberration correcting optical element,” wherein the latter element satisfies a claimed diffraction order combination. Therefore, the first embodiment does not teach diffraction orders for a “chromatic aberration correcting optical element,” as claimed.

The third embodiment includes an “objective lens 14” with a “diffractive structure” and a “chromatic aberration correcting-use element 18” with a “multi-layer diffractive element.” Paragraphs 0540-0542. “Chromatic aberration correcting-use element 18” has a different diffractive structure than that of the “objective lens OBJ1” of first

embodiment, and also has a different diffractive structure than the “objective lens 14” of the third embodiment. *Id.* and Figures 1c, 2, and 42. The Examiner has not clearly articulated why one would be motivated to maintain certain specified diffraction orders when substituting the “objective lens OBJ1” of the first embodiment for the “chromatic aberration correcting-use element 18” of the third embodiment. Nor has the Examiner addressed how the substitution and diffractive orders would result in an operative system, especially since the resultant system would comprise both diffractive structures of “objective lens 14” and “objective lens OBJ1.”

The Examiner has also failed to address the express teachings of *Atarashi*, which discloses that a “conventional diffractive element” creates “problems” for the optical system of the third embodiment. Paragraphs 0541-0542. *Atarashi* does not use the single layer diffractive structure of the first embodiment, but instead uses a “multi-layer” diffractive structure. *Id.* The physical differences between the single and multi-layer diffractive structures would not necessarily result in a multi-layer “chromatic aberration correcting-use element” having the same diffraction orders as the single layer “objective lens OBJ1,” especially since the multi-layer element is further combined with another diffractive objective lens 14. Since *Atarashi* expressly alters the physical properties of the “chromatic aberration correcting-use element 18” of the third embodiment to be different than the “objective lens OBJ1” of the first embodiment, the substitution is not a “predictable solution” with a “reasonable expectation of success.” In other words, the Examiner has not made a *prima facie* case of obviousness that *Atarashi* would maintain the diffractive orders of a singular diffractive lens in a separate

embodiment having a multi-layer diffractive structure that is combined with another, separate diffractive structure.

For at least these reasons, a *prima facie* case of obviousness is lacking, and the rejections should be withdrawn.

Independent claim 34, though of different scope from claim 1, recites elements similar to those set forth above for claim 1. Claim 34 is therefore allowable for at least the reasons presented above with respect to claim 1. Claims 2-4, 9-22, 25-28, and 34-41 are also allowable at least due to their respective dependence from claims 1 and 34. Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. § 103(a).

**Claims 38, and 39**

A *prima facie* case of obviousness has not been established with respect to claims 38 and 39 because, among other things, *Atarashi* and *Takeuchi* do not establish a *prima facie* case of obviousness for each and every element of Applicants' claims.

Dependent claims 38 and 39 include all of the elements of independent claim 34, including, for example a "chromatic aberration correcting optical element satisf[ying] one of the following combinations:  $(n_1, n_2, n_3) = (2, 1, 1), (4, 2, 2), (6, 4, 3), (8, 5, 4), (10, 6, 5)$  where  $n_1, n_2$ , and  $n_3$  are diffraction orders of diffracted rays with the largest diffraction efficiencies in the diffracted rays when the first, second and third light fluxes enter into the chromatic aberration correcting optical element, respectively." As set forth above, *Atarashi* fails to teach or suggest at least this portion of claim 34.

The Examiner alleges that *Takeuchi* teaches "specific details of the material or physical structure of the coupling lens." Office Action, page 9. Even assuming that this

allegation is true, which Applicants do not concede, *Takeuchi* fails to cure the deficiencies of *Atarashi* discussed above. That is, *Takeuchi* does not teach or suggest a “chromatic aberration correcting optical element satisf[ying]” specified “diffraction orders,” as recited in claim 34, and required by claims 38 and 39.

Accordingly, the prior art fails to establish a *prima facie* case of obviousness with respect to claims 38 and 39, at least because the prior art fails to teach each and every element required by the claims.

#### **Allowable Subject Matter**

Applicants thank the Examiner for indicating that claims 21, 22, 40, and 41 contain allowable subject matter. Applicants assert that the claims may be allowable for other, or additional, reasons to those set forth in the Office Action.

#### **Conclusion**

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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